IN THE CLAIMS

1. (currently amended) A method of screening for the discovery of disease associated molecular targets for diagnostic or therapeutic intervention, the method comprising;

performing *in vivo* imaging by dynamic contrast MRI of diseased tissue from an individual to provide one or more *in vivo* images;

evaluating said *in vivo* image for imaging features;

obtaining a cellular sample from said diseased tissue from said individual, which sample corresponds to said imaging feature;

determining the expression of genes or gene products in said cellular sample;

comparing said expression in said cellular sample with a control tissue;

wherein genes or gene products upregulated in said cellular sample represent molecular targets for therapeutic or diagnostic intervention.

2. –3 (canceled)

4. (original) The method according to Claim 1, wherein said step of determining expression of genes comprises hybridization analysis of probes derived from mRNA present in said cellular sample.

5. (original) The method according to Claim 1, wherein said step of determining expression of gene products comprises proteomic analysis.

6. (original) The method according to Claim 1, wherein said control sample comprises cells from said diseased tissue, but spatially or temporally separated from said cellular sample.

7. (currently amended) ~~The method according to Claim 1~~ A method of screening for the discovery of human disease associated molecular targets for diagnostic or therapeutic intervention, the method comprising;

performing *in vivo* imaging wherein said *in vivo* imaging is selected from the group consisting of MRI, MRS, nuclear scintigraphy, PET, CT, ultrasonography, optical imaging, infrared imaging, and x-ray radiography of diseased tissue from a human patient to provide one or more *in vivo* images;

evaluating said *in vivo* image for imaging features;

obtaining a cellular sample from said diseased tissue from said human patient, which sample corresponds to said imaging feature;

determining the expression of genes or gene products in said cellular sample;

comparing said expression in said cellular sample with a control tissue;

wherein genes or gene products upregulated in said cellular sample represent molecular targets for therapeutic or diagnostic intervention.

8-22 (canceled)

23. (new) The method according to Claim 1, wherein said individual is ahuman.